

REMARKS

Claims 1-18, 20-22 and 24-26 are pending in the application.

Claims 1-18, 20-22 and 24-26 are rejected.

Claims 12, 15, 22, and 24 are amended. Claim 16 is cancelled. No new matter is added.

Claims 1-15, 17-18, 20-22, and 24-26 remain in the case for consideration.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

Claim Rejections – 35 USC § 103

Claims 1, 3, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,643,822 to Furukawa et al. ("Furukawa et al.") in view of US Patent No. 6,231,673 to Maeda ("Maeda").

Claims 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. in view of Maeda, and further in view of US Patent No. 4,804,633 to Macelwee et al.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. in view of Maeda, and further in view of US Patent No. 5,994,201 to Lee.

Claims 7 and 13 are rejected 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. in view of Maeda, and further in view of US Patent No. 6,150,235 to Doong et al.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. in view of Maeda, and further in view of US Patent No. 5,923,998 to Liu.

Claims 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al., Maeda, Macelwee et al. in view of Liu, and further in view of US Patent No. 6,150,235 to Doong et al.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al., Maeda, Liu, US Patent No. 6,180,493 to Chu in view of US Patent No. 6,140,208 to Agahi et al., and further in view of US Patent No. 5,665,633 to Meyer.

Claims 15, 18, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,140,208 to Agahi et al. in view of US Patent No. 6,231,673 to Maeda.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agahi et al. in view of Maeda, and further in view of US Patent No. 4,804,633 to Macelwee et al.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agahi et al. in view of Maeda, and further in view of US Patent No. 6,174,785 to Parekh et al.

Claims 20, 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agahi et al. and Maeda in view of US Patent No. 4,804,633 to Macelwee et al., and further in view of US Patent No. 6,150,235 to Doong et al.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agahi et al. and Maeda in view of Macelwee et al., and further in view of US Patent No. 6,174,785 to Parekh et al.

Applicant respectfully traverses the rejections.

With respect to independent claim 1, the claim recites that a CVD oxide layer is formed *directly on* the thermal oxide layer. Furukawa et al. does not disclose this feature. Rather, Furukawa et al. discloses various types of mask layers 12 and 14 for forming a trench. The mask layer is based on a double layer comprised of a pad nitride layer (stack structure) 14 and a pad oxide layer 12. Furukawa et al. states that an additional layer can be formed on the pad nitride layer 14, and the additional layer can be a CVD oxide layer or a PE-CVD oxide layer. Furukawa et al. discloses at column 4, lines 28-35, that "another optional layer which can be utilized as part of stack 14 is plasma-deposited layer such as plasma oxide or plasma nitride layer." Accordingly, in Furukawa et al., the pad oxide layer 12 (the thermal oxide layer) is not directly in contact with the CVD oxide layer or the PECVD oxide layer. The pad nitride layer 14 is interposed between the pad oxide layer 12 and the additional CVD oxide layer or PECVD oxide layer.

Thus, independent claim 1 is believed to be allowable and allowance is respectfully requested. Claims 2-11 depend from independent claim 1, and for at least the same reasons these claims are believed to be allowable and allowance is respectfully requested.

Independent claims 12, 15 and 22 are amended to clarify that during the process of forming a thin thermal oxide layer, only 8.8 Å to 44 Å of substrate are consumed which is supported in the present application at page 13, lines 14-16. Substrate consumption is reduced resulting in reduced stresses in the structure because of the reduced volume expansion.

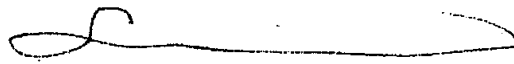
None of the patents cited by the Examiner disclose a reduced consumption of substrate during the forming of a thermal oxide layer. The cited patents do not disclose the resulting benefits of reducing the consumption of substrate. Thus, the amended independent claims are not obvious in view of any of the cited patents and are believed to be allowable.

Claims 13-14 depend from amended independent claim 12, claims 17-18 and 20-21 depend from amended independent claim 15 and claims 24-26 depend from amended

independent claim 22. These claims are believed to be allowable for at least the same reasons given for the amended independent claims.

For the foregoing reasons, reconsideration and allowance of claims 1-15, 17-18, 20-22, and 24-26 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,
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Hosoon Lee
Limited Recognition Under 37 CFR § 10.9(b)

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